

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A data communication device, ~~between a line monitoring unit and a transmission unit~~ ^{the device} of the device comprising: ~~a line state monitoring unit connected to two transmission lines and a line interface;~~ ^{a line interface} the a line state monitoring unit for detecting a line state relating to transmission quality in a communication line and producing line state information indicating the line state; and ^{a line interface} a transmission control unit, having unit including a plurality of operation modes for transmitting data over the communication line, wherein the transmission unit is configured to select corresponding to a plurality of error tolerance levels different from each other, for selecting a specific operation mode from the operation modes based on an error tolerance level, which is determined according to the line state information produced by the line state monitoring unit, and performing a perform transmission control for continuously transmitting the data regardless of the line state detected by the line state monitoring unit, ~~which is planned to be sent out to the communication line, according to the specific operation mode.~~ ^{a line interface}

2. (Original) A data communication device according to claim 1, wherein the specific operation mode is changed to another operation mode by the transmission control unit in response to ~~the~~ a change of the line state indicated by the line state information during the transmission of the data without suspending the transmission of the data, and the transmission control is performed for the transmission data according to the changed operation mode by the transmission control unit.

3. (Currently Amended) A data communication device according to claim 1, wherein:

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the transmission control unit has a plurality of data multiplexing methods corresponding to the operation modes, a specific multiplexing method is selected from the multiplexing methods by the transmission control unit according to the line state information produced by the line state monitoring unit, the specific multiplexing method being an optimal one of the plurality of multiplexing methods for transmitting data according to the determined error tolerance level, and

pieces of transmission data, which are planned to be sent out to the communication line, are multiplexed with each other to a stream of multiplexed transmission data according to the specific multiplexing method.

4. (Original) A data communication device according to claim 1, wherein the specific operation mode is changed to another operation mode corresponding to a high error tolerance level by the transmission control unit according to the line state information in cases where the line state information indicates a deteriorated line state, and the specific operation mode is changed to another operation mode corresponding to a low error tolerance level by the transmission control unit according to the line state information in cases where the line state information indicates an ameliorated line state.

5. (Original) A data communication device according to claim 1, further comprising:

an operation mode change request receiving unit for receiving an operation mode change request from a second data communication device and sending the operation mode change

request to the transmission control unit to make the transmission control unit perform the transmission control for the transmission data according to a particular operation mode indicated by the operation mode change request.

6. (Currently Amended) A data communication device, according to claim 1, further comprising:

a line state monitoring unit for detecting a line state relating to transmission quality in a communication line and producing line state information indicating the line state;
a transmission control unit, including a plurality of operation modes for transmitting data over the communication line, the transmission control unit being configured to select a specific operation mode from the operation modes according to the line state information produced by the line state monitoring unit, and perform transmission control for continuously transmitting data regardless of the line state detected by the line state monitoring unit according to the specific operation mode; and

a line interface, connected with the communication line, for sending the transmission data to the communication line,

wherein the transmission control unit controls the line interface to add a new communication line connected with the line interface, in cases where the specific operation mode corresponds to a high error tolerance level, and to disconnect the new communication line from the line interface in cases where the specific operation mode is changed to a low error tolerance level.

7. (Original) A data communication device according to claim 1, further comprising:

a line interface for receiving and sending the transmission data to/from the communication line,
wherein the transmission control unit controls the line interface to increase a data transfer rate for data sending while decreasing a data transfer rate for data reception by a degree of the increase of the data transfer rate for data sending in cases where the specific operation mode is changed to a particular operation mode corresponding to a high error tolerance level in the transmission control unit to perform the transmission control for the transmission data sent out to the communication line according to the particular operation mode.

8. (Original) A data communication device according to
claim 1, further comprising:

a line interface for receiving the transmission data from,
and sending the transmission data from/to to, the communication
line,

wherein the transmission control unit controls the line
interface to decrease a data transfer rate for data sending
while increasing a data transfer rate for data reception by a
degree of the decrease of the data transfer rate for data
sending in cases where the specific operation mode is changed to
a particular operation mode corresponding to a low error
tolerance level in the transmission control unit to perform the
transmission control for the transmission data sent out to the
communication line according to the particular operation mode.

9. (Currently Amended) A data communication device,
comprising:

a line state monitoring unit for detecting a line state relating
to transmission quality in a communication line and producing
line state information indicating the line state;

a transmission control unit, having unit including a plurality of operation modes for transmitting data over the communication line, wherein the transmission control unit is configured to select corresponding to a plurality of error tolerance levels different from each other, for selecting a specific operation mode from the operation modes based on an error tolerance level, which is determined according to the line state information produced by the line state monitoring unit, and performing perform a transmission control for continuously transmitting data regardless of the line state detected by the line state monitoring unit, which is sent out to the communication line or is received through the communication line, according to the specific operation mode; and

an operation mode change request outputting unit for requesting of a second data communication device, with which communication is performed through the communication line, that an operation mode selected in the second data communication device is changed to the specific operation mode selected by the transmission control unit.

10. (Original) A data communication device according to claim 9, wherein the request of the operation mode change request outputting unit to the second data communication device is performed during the sending or reception of the transmission data without suspending the sending or reception of the transmission data.

11. (Currently Amended) A data communication device according to claim 9, wherein:

the transmission control unit has a plurality of data multiplexing methods corresponding to the operation modes, a specific multiplexing method is selected from the multiplexing methods by the transmission control unit according to the line state information produced by the line state monitoring unit, the selected multiplexing method being an optimal one of the plurality of data multiplexing methods for transmitting data according to the determined error tolerance level, and

the operation mode change request outputting unit requests the second data communication device, during the transmission of

the data without suspending the transmission of the data, to select the specific multiplexing method.

12. (Original) A data communication device according to claim 9, wherein the operation mode change request outputting unit requests the second data communication device to change the specific operation mode to an operation mode corresponding to a high error tolerance level in cases where the line state information produced by the line state monitoring unit indicates a deteriorated line state, and the operation mode change request outputting unit requests the second data communication device to change the specific operation mode to an operation mode corresponding to a low error tolerance level in cases where the line state information produced by the line state monitoring unit indicates an ameliorated line state.

13. (Original) A data communication device according to claim 9, further comprising:

an operation mode change request receiving unit for receiving an operation mode change request from the second data communication device, and sending the operation mode change

request to the transmission control unit to make the transmission control unit perform the transmission control for the transmission data, which is received through the communication line or is sent out to the communication line, according to a particular operation mode indicated by the operation mode change request.

14. (Currently Amended) A data communication device according to claim 9, further comprising:

a line interface, connected with the communication line, for receiving transmission data from or sending the transmission data from/to to the communication line,

wherein the transmission control unit controls the line interface to add a new communication line connected with the line interface, in cases where the specific operation mode corresponds to a high error tolerance level, and to disconnect the new communication line, which is connected with the line interface, from the line interface in cases where the specific operation mode corresponding to the high error tolerance level is changed to that corresponding to a low error tolerance level.

15. (Original) A data communication device according to
claim 13, further comprising:

a line interface, connected with the communication line,
for receiving or sending the transmission data from/to the
communication line,

wherein the operation mode change request receiving unit
further receives a communication line adding request or a
communication line disconnecting request from the second data
communication device, the operation mode change request
receiving unit sends the communication line adding request or
the communication line disconnecting request to the transmission
control unit, the transmission control unit controls the line
interface to add a new communication line connected with the
line interface according to the communication line adding
request and changes the specific operation mode to an operation
mode corresponding to a high error tolerance level according to
the operation mode change request, and the transmission control
unit controls the line interface to disconnect the new
communication line, which is connected with the line interface,
from the line interface according to the communication line
disconnecting request and changes the specific operation mode to

an operation mode corresponding to a low error tolerance level according to the operation mode change request.

16. (Original) A data communication device according to claim 9, wherein the operation mode change request outputting unit requests the second data communication device to add a new communication line connected with the second data communication device in cases where the operation mode change request outputting unit requests the second data communication device to change the specific operation mode to an operation mode corresponding to a high error tolerance level, and the operation mode change request outputting unit requests the second data communication device to disconnect the new communication line, which is connected with the second data communication device, from the second data communication device in cases where the operation mode change request outputting unit requests the second data communication device to change the operation mode corresponding to the high error tolerance level to an operation mode corresponding to a low error tolerance level.

17. (Original) A data communication device according to
claim 9, further comprising:

a line interface for receiving and sending the transmission
data from/to the communication line,

wherein the transmission control unit controls the line
interface to increase a data transfer rate for data sending
while decreasing a data transfer rate for data reception by a
degree of the increase of the data transfer rate for data
sending, in cases where the specific operation mode is changed
to a particular operation mode corresponding to a high error
tolerance level in the transmission control unit to perform the
transmission control for the transmission data sent out to the
communication line according to the particular operation mode,
and to increase a data transfer rate for data reception while
decreasing a data transfer rate for data sending by a degree of
the increase of the data transfer rate for data reception in
cases where the specific operation mode is changed to a
particular operation mode corresponding to a high error
tolerance level in the transmission control unit to perform the
transmission control for the transmission data received through

the communication line according to the particular operation mode.

18. (Original) A data communication device according to claim 9, further comprising:

a line interface for receiving and sending the transmission data from/to the communication line,

wherein the transmission control unit controls the line interface to decrease a data transfer rate for data sending while increasing a data transfer rate for data reception by a degree of the decrease of the data transfer rate for data sending, in cases where the specific operation mode is changed to a particular operation mode corresponding to a low error tolerance level in the transmission control unit to perform the transmission control for the transmission data sent out to the communication line according to the particular operation mode, and to decrease a data transfer rate for data reception while increasing a data transfer rate for data sending by a degree of the decrease of the data transfer rate for data reception in cases where the specific operation mode is changed to a particular operation mode corresponding to a low error tolerance level in the transmission control unit to perform the

transmission control for the transmission data received through the communication line according to the particular operation mode.

19. (Currently Amended) A data communication device according to claim 13, further comprising:

a line interface for receiving transmission data from, and sending the transmission data from/to to the communication line,
wherein the operation mode change request receiving unit further receives a data rate change request from the second data communication device, the operation mode change request receiving unit sends the data rate change request to the transmission control unit, the transmission control unit controls the line interface to increase a data transfer rate for data sending while decreasing a data transfer rate for data reception by a degree of the increase of the data transfer rate for data sending according to the data rate change request, in cases where the specific operation mode is changed to a particular operation mode corresponding to a high error tolerance level in the transmission control unit according to the operation mode change request to perform the transmission control for the transmission data sent out to the communication

line according to the particular operation mode, and the transmission control unit controls the line interface to increase a data transfer rate for data reception while decreasing a data transfer rate for data sending by a degree of the increase of the data transfer rate for data reception according to the data rate change request in cases where the specific operation mode is changed to a particular operation mode corresponding to a high error tolerance level in the transmission control unit according to the operation mode change request to perform the transmission control for the transmission data received through the communication line according to the particular operation mode.

20. (Original) A data communication device according to claim 9, wherein the operation mode change request outputting unit requests the second data communication device to increase a data transfer rate for data sending while decreasing a data transfer rate for data reception by a degree of the increase of the data transfer rate for data sending, in cases where the operation mode change request outputting unit requests the second data communication device to change the specific

operation mode to a particular operation mode corresponding to a high error tolerance level in the transmission control unit according to the operation mode change request to perform the transmission control for the transmission data sent out to the communication line according to the particular operation mode, and the operation mode change request outputting unit requests the second data communication device to increase a data transfer rate for data reception while decreasing a data transfer rate for data sending by a degree of the increase of the data transfer rate for data reception in cases where the operation mode change request outputting unit requests the second data communication device to change the specific operation mode to a particular operation mode corresponding to a high error tolerance level in the transmission control unit according to the operation mode change request to perform the transmission control for the transmission data received through the communication line according to the particular operation mode.